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WHITE SANDS MISSILE RANGE, NEW MEXICO.

DR-409 -  
March 1969  
AD

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METEOROLOGICAL DATA REPORT

NIKE-HYDAC STV-82  
(4 February 1969)

AND

NIKE-HYDAC STV-83  
(4 February 1969)

BY

GORDON L. DUNAWAY

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DA Task 1T665702D127-02

ATMOSPHERIC SCIENCES OFFICE  
WHITE SANDS MISSILE RANGE, NEW MEXICO

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# ABSTRACT

Meteorological data gathered for the launching of two Nike-Hydac Missiles, STV-82 and STV-83, are presented for the Space and Missile Systems Organization, Holloman Air Force Base, New Mexico, and for ballistic studies. The data appear, along with calculated ballistic data, in tabular form.

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## INTRODUCTION

Nike-Hydac STV-82 was launched from Launch Complex 33, L-361, White Sands Missile Range (WSMR), New Mexico, at 0811 hours MST, 4 February 1969.

Nike-Hydac STV-83 was launched from Launch Complex 33, L-314, WSMR, New Mexico, at 0900 hours MST, 4 February 1969.

Meteorological data used in conjunction with theoretical calculations to predict rocket impact were collected by the Meteorological Support Technical Area, Atmospheric Sciences Office (ASO), WSMR, New Mexico. The Ballistics Meteorologist for these firings was Gordon L. Dunaway.

## DISCUSSION

Wind data for the first 216 feet above the surface were obtained from a system composed of five Aerovanes mounted on a 200-foot tower and cabled to component wind indicators.

From 216 to 4,160 feet above the surface, wind data were obtained from T-9 Radar-tracked balloon ascents.

Temperature, pressure and humidity data, along with upper wind data from 4,160 to 100,000 feet above the surface, were obtained from standard rawinsonde observations.

Mean wind component values in each ballistic zone were determined from vertical cross sections by the equal-area method.

Theoretical rocket performance values and ballistic factors as a function of altitude were provided by ASO and are the basis for data appearing in Tables I and II.



PAYLOAD		305	Pounds
CORIOLIS DISPLACEMENT	WEST	3.8	Miles
SECOND-STAGE IGNITION	TIME	20.0	Seconds
	ALTITUDE	35,000	Feet MSL
PEAK	TIME	205	Seconds
	ALTITUDE	555,000	Feet MSL
	HEAD	2.446	Miles/MPH
UNIT WIND EFFECT	CROSS	2.457	Miles/MPH
	TAIL	2.372	Miles/MPH
TOWER TILT EFFECT		11.5	Miles/Degree

TABLE 1. THEORETICAL ROCKET PERFORMANCE VALUES  
NIKE-HYDAC STV-82

PAYLOAD			220	Pounds
CORIOLIS DISPLACEMENT	WEST		4.9	Miles
SECOND-STAGE IGNITION	TIME		20.0	Seconds
	ALTITUDE		35,760	Feet MSL
PEAK	TIME		236	Seconds
	ALTITUDE		716,000	Feet MSL
UNIT WIND EFFECT	HEAD		2.158	Miles/MPH
	CROSS		2.244	Miles/MPH
	TAIL		2.167	Miles/MPH
TOWER TILT EFFECT			14.53	Miles/Degree

TABLE II. THEORETICAL ROCKET PERFORMANCE VALUES  
NIKE-HYDAC STV-83

LAYERS IN FEET ABOVE GROUND	BALLISTIC FACTORS
9- 60	.1661
60- 108	.0971
108- 148	.0791
148- 184	.0599
184- 216	.0142
216- 300	.0802
300- 400	.0656
400- 600	.0558
600- 800	.0562
800-1000	.0412

LAYERS IN FEET ABOVE GROUND	BALLISTIC FACTORS
1000- 1400	.0531
1400- 2000	.0502
2000- 2500	.0289
2500- 3000	.0167
3000- 3500	.0075
3500- 4100	.0035
4100-11000	-.0159
11000-16000	-.0110
16000-21000	-.0104
21000-26000	-.0097

LAYERS IN FEET ABOVE GROUND	BALLISTIC FACTORS
26000-31000	-.0062
31000-34000	.0794
34000-36000	.0281
36000-41000	.0346
41000-46000	.0137
46000-51000	.0076
51000-56000	.0063
56000-61000	.0044
61000-67300	.0039

TABLE III. BALLISTIC FACTORS  
NIKE-HYDAC STV-82

LAYERS IN FEET ABOVE GROUND	BALLISTIC FACTORS
15- 60	.135
60-108	.075
108-148	.070
148-184	.031
184-216	.029
216-300	.052
300-400	.048
400-600	.082
600-800	.058

LAYERS IN FEET ABOVE GROUND	BALLISTIC FACTORS
800- 1000	.039
1000- 1400	.071
1400- 2000	.065
2000- 2500	.031
2500- 3000	.027
3000- 3500	.010
3500- 4160	.009
4160-11000	-.024
11000-16000	-.018

LAYERS IN FEET ABOVE GROUND	BALLISTIC FACTORS
16000-21000	-.018
21000-26000	-.012
26000-31770	-.012
31770-36000	.132
36000-41000	.058
41000-46000	.032
46000-56000	.018
56000-66000	.011
66000-73300	.001

TABLE IV. BALLISTIC FACTORS  
NIKE-HYDAC STV-83

AERO- VANE NO. *	MEAN WIND COMPONENTS IN MILES PER HOUR											
	1 0600 MST		2 0630 MST		3 0700 MST		4 0715 MST		5 0730 MST		6 0745 MST	
	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W
1	2.0N	2.0W	2.0N	1.0W	1.0N	1.0W	1.0N	1.0W	1.0N	3.0W	0.0	2.0W
2	5.0	2.0E	5.0	2.0E	3.0	3.0E	2.0	1.0E	2.0	2.0	1.0N	1.0
3	8.0	4.0	9.0	5.0	7.0	6.0	6.0	4.0	5.0	2.0E	3.0	1.0E
4	12.0	5.0	14.0	3.0	11.0	7.0	9.0	5.0	8.0	5.0	6.0	3.0
5	12.0	3.0	13.0	2.0	11.0	6.0	9.0	4.0	8.0	4.0	6.0	3.0

AERO- VANE NO. *	MEAN WIND COMPONENTS IN MILES PER HOUR											
	7 0800 MST		8 0811 MST		9 0820 MST		10 0830 MST		11 0845 MST		12 0850 MST	
	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W
1	0.0	0.0	0.0	0.0	0.0	0.0	2.0N	0.0	3.0N	0.0	3.0N	1.0E
2	3.0N	0.0	3.0N	1.0E	2.0N	0.0	2.0	1.0E	2.0	1.0E	3.0	2.0
3	6.0	3.0E	6.0	2.0	4.0	1.0E	5.0	2.0	4.0	1.0	6.0	2.0
4	9.0	4.0	10.0	3.0	8.0	1.0	9.0	2.0	8.0	3.0	8.0	3.0
5	9.0	3.0	10.0	3.0	9.0	2.0	10.0	3.0	11.0	3.0	11.0	4.0

TABLE V. ANEMOMETER WIND SPEED AND DIRECTION  
NIKE-HYDAC STV-82 and STV-83

\* Heights corresponding to Aerovane Numbers: 1 = 35 Feet 3 = 128 Feet 5 = 200 Feet  
2 = 88 Feet 4 = 168 Feet

LAYERS IN FEET ABOVE GROUND	MEAN WIND COMPONENTS IN MILES PER HOUR											
	1 0600 MST		2 0630 MST		3 0700 MST		4 0715 MST		5 0730 MST		6 0745 MST	
	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W
216- 300	9.5N	4.0E	12.5N	2.0E	9.5N	4.5E	8.0N	2.5E	7.5N	3.0E	6.5N	2.0E
300- 400	7.0	0.0	10.0	0.5	6.0	2.0	5.5	0.0	6.0	0.5	6.5	0.5
400- 600	2.5	2.5W	4.0	2.5W	2.5	1.5W	1.5	2.0W	1.5	2.5W	3.0	2.5W
600- 800	3.5	6.0	1.0	3.5	0.5	1.5	0.0	1.0	1.0	1.5	0.5	2.0
800-1000	2.5	5.5E	1.0S	2.5	0.0	1.5E	1.0S	1.0E	0.5S	1.5E	2.0S	0.5E
1000-1400	0.5S	7.5	0.5N	6.0E	0.5S	6.0	2.0	4.5	1.5	5.5	4.5	5.5
1400-2000	6.0	9.5	4.5S	7.5	5.5	8.5	7.0	8.0	7.0	7.5	8.0	6.5
2000-2500	7.5	13.0	9.0	12.5	13.0	13.0	13.5	12.0	8.0	12.5	13.0	9.5
2500-3000	8.0	15.0	11.0	12.5	12.5	13.5	13.0	10.5	12.5	8.0	14.0	7.0
3000-3500	9.0	13.5	13.0	11.5	15.0	9.0	16.5	9.5	16.0	9.5	17.0	10.5
3500-4100	15.0	10.0	19.0	10.0	17.0	9.0	17.0	7.5	17.0	7.5	19.0	6.5
											19.5	5.0

TABLE VI. PILOT-BALLOON-MEASURED WIND DATA  
NIKE-HYDAC STV-82 and STV-83

LAYERS IN FEET ABOVE GROUND	MEAN WIND COMPONENTS IN MILES PER HOUR											
	8		9		10		11		12		13	
	0811 MST		0820 MST		0830 MST		0845 MST		0850 MST		0900 MST	
	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W
216-- 300	9.5N	2.0E	7.5N	2.0E	9.5N	2.0E	9.5N	2.0E	9.5N	2.0E	7.5N	3.0E
300-- 400	7.0	0.5	6.5	1.5	8.0	1.5	7.0	1.5	7.5	1.5	6.5	0.5
400-- 600	3.0	1.5W	3.0	0.0	3.5	0.5W	3.5	1.0W	4.0	0.5	4.0	1.5W
600-- 800	2.0	0.5	1.5	0.0	2.0	1.5W	1.5	0.5E	4.0	2.0	2.5	1.5E
800--1000	0.5	2.0E	0.0	1.0E	1.0	5.5	1.5	2.5	3.0	3.0	2.5	2.5
1000--1400	2.0S	6.0	1.5S	6.5	1.5S	2.5	2.0S	5.0	0.0	5.5	0.5E	5.0
1400--2000	8.0	3.5	7.0	2.5	6.0	7.5	6.5	3.0	5.0E	3.5	5.5	4.0
2000--2500	10.5	4.0	10.0	6.5	7.5	11.5	6.0	9.0	5.5	9.5	7.0	10.5
2500--3000	14.5	9.5	13.0	11.0	12.0	9.0	12.0	10.0	11.5	10.0	12.5	10.0
3000--3500	18.0	9.5	16.0	10.0	14.0	8.0	14.0	7.5	15.0	7.0	16.0	8.0
3500--4160	20.0	6.0	19.5	7.0	18.5	7.0	19.5	4.5	19.0	4.0	18.5	4.5

TABLE VI. PILOT-BALLOON-MEASURED WIND DATA (CONT)  
NIKE-HYDAC STV-82 and STV-83

LAYERS IN FEET ABOVE GROUND	MEAN WIND COMPONENTS IN KNOTS					
	1		2		N-S	E-W
	0500 MST		0800 MST			
	N-S	E-W	N-S	E-W		
4100-11000	13.5S	4.0W	15.5S	13.0W		
11000-16000	13.5	23.5	14.5	25.0		
16000-21000	12.5	15.0	11.0	30.0		
21000-26000	9.0	50.0	17.5	48.0		
26000-31000	20.5	56.5	19.5	53.5		
31000-34000	21.0	58.5	23.5	65.0		
34000-36000	22.0	61.0	7.5	40.5		
36000-41000	12.0	68.0	13.5	78.0		
41000-46000	12.5	71.0	12.0	68.0		
46000-51000	12.0	68.0	19.0	51.5		
51000-56000	0.0	48.0	16.5	45.0		
56000-61000	0.0	37.0	0.0	42.0		
61000-67300	0.0	41.0	12.5N	35.0		

TABLE VII. RAWINSONDE-MEASURED WIND DATA  
NIKE-HYDAC STV-82



LAYERS IN FEET ABOVE GROUND	MEAN WIND COMPONENTS IN KNOTS					
	0800 MST					
	N-S	E-W	N-S	E-W	N-S	E-W
4160-11000	15.5S	13.0W				
11000-16000	14.5	25.0				
16000-21000	11.0	30.0				
21000-26000	17.5	48.0				
26000-31770	19.5	53.5				
31770-36000	15.5	53.0				
36000-41000	13.5	78.0				
41000-46000	12.0	68.0				
46000-56000	18.0	48.5				
56000-66000	6.0N	39.0				
66000-73300	12.5	34.0				

TABLE VIII. RAWINSONDE-MEASURED WIND DATA  
NIKE-HYDAC STV-83

STATION ALTITUDE 3989.0 FEET MSL  
4 FEB. 69 0500 HRS MST  
ASCENSION NO. 118

SIGNIFICANT LEVEL DATA  
0659003905  
WHITE SANDS SITE

WSTM SITE COORDINATES  
E 488,580 FEET  
N 185,045 FEET

TABLE IX

PRESSURE GEOMETRIC ALTITUDE		TEMPERATURE AIR DEWPOINT		REL. HUM. PERCENT
MILLIBARS	MSL FEET	DEGREES	CENTIGRADE	
886.3	3989.0	-2.0	-10.1	54.0
876.0	4297.3	3.7	-13.2	28.0
858.0	4851.5	4.5	-12.5	28.0
762.0	8005.8	1.4	-11.7	37.0
751.0	8390.8	2.0	-9.3	43.0
714.0	9728.1	1.0	-6.8	56.0
702.0	10175.4	0.2	-5.6	65.0
681.0	10974.1	-0.9	-12.2	42.0
608.0	13914.0	-7.0	-26.3	20.0
598.0	14339.2	-6.8	-28.5	16.0
496.0	19059.9	-15.2	-34.3	18.0
421.0	23056.1	-25.0	-37.0	32.0
405.0	23978.4	-27.3	-31.6	68.0
395.0	24569.6	-28.3	-32.1	71.0
290.0	31604.0	-45.6	-49.8	64.0
213.0	38105.5	-63.7	0.	-0. **
198.0	39579.8	-64.1	0.	-0. **
188.0	40636.0	-59.8	0.	-0. **
158.0	44236.2	-57.3	0.	-0. **
142.0	46456.4	-58.2	0.	-0. **
130.0	48272.2	-62.1	0.	-0. **
111.0	51491.9	-62.2	0.	-0. **
93.0	55041.9	-68.7	0.	-0. **
87.0	56357.0	-69.5	0.	-0. **
80.0	57997.0	-72.2	0.	-0. **
61.0	63307.3	-68.9	0.	-0. **
40.0	71749.3	-63.7	0.	-0. **
34.0	75077.0	-59.5	0.	-0. **
26.0	80615.8	-60.3	0.	-0. **

\*\* RELATIVE HUMIDITY NOT SUPPLIED. ZERO VALUE ASSUMED FOR COMPUTATIONS.

STATION ALTITUDE 3989.0 FEET MSL  
4 FEB. 69 0500 HRS MST  
ASCENSION NO. 118

UPPER AIR DATA  
0658003905  
WHITE SANDS SITE

WSTM SITE COORDINATES  
E 488,580 FEET  
N 185,045 FEET

TABLE X

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND		WIND DATA DIRECTION DEGREES(TN)	SPEED KNOTS	INDEX OF REFRACTION
		AIR DEGREES	DEWPOINT CENTIGRADE			KNOTS	KNOTS			
3989.0	886.3	-2.0	-10.1	54.0	1137.5	641.6	0.	0.	0.	1.000268
4000.0	885.9	-1.8	-10.1	53.1	1136.2	641.8	0.7	0.7	0.1	1.000268
4500.0	869.4	4.0	-12.9	28.0	1091.9	648.5	30.5	30.5	2.4	1.000254
5000.0	853.2	4.4	-12.4	28.4	1070.1	649.0	60.2	60.2	4.8	1.000250
5500.0	837.3	3.9	-12.2	29.9	1052.0	648.4	90.0	90.0	7.1	1.000246
6000.0	821.7	3.4	-12.1	31.3	1034.2	647.9	119.8	119.8	9.5	1.000242
6500.0	806.4	2.9	-12.0	32.7	1016.7	647.3	137.9	137.9	11.2	1.000239
7000.0	791.4	2.4	-11.9	34.1	999.5	646.7	142.4	142.4	12.1	1.000235
7500.0	776.6	1.9	-11.8	35.6	982.6	646.2	147.6	147.6	12.8	1.000231
8000.0	762.2	1.4	-11.7	37.0	966.0	645.6	153.3	153.3	13.5	1.000228
8500.0	747.9	1.9	-9.1	44.1	945.9	646.3	158.4	158.4	15.1	1.000226
9000.0	733.9	1.5	-8.1	48.9	929.3	645.9	163.3	163.3	17.0	1.000224
9500.0	720.2	1.2	-7.2	53.8	913.0	645.5	169.3	169.3	17.7	1.000221
10000.0	706.7	0.5	-6.1	61.5	897.8	644.8	175.4	175.4	18.2	1.000220
10500.0	693.4	-0.2	-8.1	55.7	883.6	643.8	182.0	182.0	17.2	1.000214
11000.0	680.3	-1.0	-12.4	41.8	869.7	642.8	189.5	189.5	16.2	1.000206
11500.0	667.3	-2.0	-14.4	38.1	856.5	641.5	200.7	200.7	15.1	1.000201
12000.0	654.6	-3.0	-16.6	34.3	845.5	640.3	211.9	211.9	14.2	1.000197
12500.0	642.1	-4.1	-18.9	30.6	830.7	639.0	223.6	223.6	14.2	1.000192
13000.0	629.3	-5.1	-21.3	26.8	818.1	637.7	233.1	233.1	14.3	1.000188
13500.0	617.8	-6.1	-23.9	23.1	805.7	636.4	236.5	236.5	15.2	1.000184
14000.0	606.0	-7.0	-26.7	19.2	792.8	635.4	238.3	238.3	16.5	1.000180
14500.0	594.2	-7.1	-28.7	16.1	777.8	635.2	237.0	237.0	18.7	1.000176
15000.0	582.5	-8.0	-29.3	16.3	765.1	634.2	236.4	236.4	20.7	1.000173
15500.0	571.1	-8.9	-29.9	16.5	752.7	633.1	236.3	236.3	22.5	1.000170
16000.0	559.9	-9.8	-30.5	16.7	740.4	632.0	238.6	238.6	24.4	1.000168
16500.0	548.9	-10.6	-31.1	16.9	728.4	631.0	242.1	242.1	26.4	1.000165
17000.0	538.2	-11.5	-31.7	17.1	716.5	629.9	245.0	245.0	28.3	1.000162
17500.0	527.6	-12.4	-32.3	17.3	704.9	628.8	247.7	247.7	30.0	1.000159
18000.0	517.3	-13.3	-33.0	17.6	693.4	627.7	247.3	247.3	31.2	1.000157

STATION ALTITUDE 3989.0 FEET MSL  
4 FEB. 69 0500 HRS MST  
ASCENSION NO. 118

UPPER AIR DATA  
06580003905  
WHITE SANDS SITE

WSTM SITE COORDINATES  
E 488,580 FEET  
N 185,045 FEET

TABLE X (Cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND M/KNOTS	WIND DATA		INDEX OF REFRACTION
		AIR DEGREES CENTIGRADE	DEWPOINT CENTIGRADE				DIRECTION DEGREES(TN)	SPEED KNOTS	
18500.0	507.1	-14.2	-33.6	17.8	682.2	626.7	246.6	32.1	1.000154
19000.0	497.2	-15.1	-34.2	18.0	671.1	625.6	245.3	31.8	1.000151
19500.0	487.1	-16.3	-34.4	19.5	660.6	624.1	244.9	31.3	1.000149
20000.0	477.2	-17.5	-34.5	21.3	650.3	622.7	246.1	30.3	1.000147
20500.0	467.5	-18.7	-34.8	23.0	640.1	621.2	247.6	30.1	1.000144
21000.0	458.1	-20.0	-35.1	24.8	630.2	619.7	249.5	30.7	1.000142
21500.0	448.8	-21.2	-35.5	26.5	620.4	618.2	251.5	31.7	1.000140
22000.0	439.6	-22.4	-36.0	28.3	610.8	616.6	253.4	33.0	1.000138
22500.0	430.7	-23.6	-36.4	30.1	601.3	615.1	254.6	34.9	1.000136
23000.0	422.0	-24.1	-37.0	31.8	592.0	613.6	255.3	37.3	1.000133
23500.0	413.2	-24.1	-37.7	49.3	582.6	612.1	256.6	39.3	1.000132
24000.0	404.6	-27.3	-31.6	68.1	573.3	610.6	258.2	41.1	1.000130
24500.0	396.2	-28.2	-32.0	70.6	563.2	609.6	258.7	43.2	1.000128
25000.0	387.6	-29.4	-33.2	70.6	553.7	608.1	258.8	45.6	1.000126
25500.0	379.2	-30.6	-34.4	70.1	544.5	606.5	258.2	47.1	1.000123
26000.0	370.9	-31.8	-35.7	69.6	535.4	605.0	257.2	48.0	1.000121
26500.0	362.9	-33.0	-37.0	69.1	526.4	603.4	255.6	49.7	1.000119
27000.0	355.0	-34.3	-38.2	68.6	517.7	601.9	253.5	51.6	1.000117
27500.0	347.3	-35.5	-39.5	68.1	509.1	600.3	252.5	53.0	1.000115
28000.0	339.7	-36.7	-40.7	67.6	500.6	598.8	251.9	54.2	1.000113
28500.0	332.4	-38.0	-42.0	67.1	492.3	597.2	252.3	55.4	1.000111
29000.0	325.1	-39.2	-43.3	66.6	484.1	595.6	253.4	56.7	1.000109
29500.0	318.1	-40.4	-44.5	66.1	476.1	594.0	254.5	57.4	1.000107
30000.0	311.2	-41.7	-45.8	65.6	468.3	592.5	255.5	57.5	1.000105
30500.0	304.4	-42.9	-47.0	65.1	460.6	590.9	256.1	57.7	1.000103
31000.0	297.8	-44.1	-48.3	64.6	453.0	589.3	256.1	58.2	1.000101
31500.0	291.3	-45.3	-49.5	64.1	445.5	587.7	255.0	58.6	1.000100
32000.0	284.6	-46.7	-51.4	60.1**	437.9	586.0	252.6	58.9	1.000098
32500.0	277.9	-48.1	-53.4	55.2**	430.2	584.2	250.6	59.8	1.000096
33000.0	271.4	-49.5	-55.5	50.3**	422.8	582.3	249.1	61.0	1.000094

\*\* AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATIONS

STATION ALTITUDE 3989.0 FEET MSL  
 4 FEB. 69 0500-HRS MST  
 ASCENSION NO. 118

UPPER AIR DATA  
 0658003905  
 WHITE SANDS SITE

WSTM SITE COORDINATES  
 E 488.580 FEET  
 N 122.044 FEET

TABLE X (Cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	AIR TEMPERATURE DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	SPEED KNOTS	INDEX OF REFRACTION
33500.0	265.0	-50.9	45.3**	415.9	580.5	247.8	62.1	1.000093
34000.0	258.8	-52.3	40.4**	408.3	578.7	246.6	63.1	1.000091
34500.0	252.8	-53.7	35.5**	401.2	576.9	246.0	62.6	1.000089
35000.0	246.8	-55.1	30.6**	394.3	575.0	245.6	61.7	1.000088
35500.0	241.0	-56.4	25.6**	387.5	573.2	244.9	62.5	1.000086
36000.0	235.4	-57.8	20.7**	380.9	571.4	244.2	63.5	1.000085
36500.0	229.9	-59.2	15.8**	374.4	569.5	243.8	63.1	1.000083
37000.0	224.5	-60.6	10.9**	368.0	567.7	243.5	62.3	1.000082
37500.0	219.2	-62.0	6.0**	361.7	565.8	244.5	62.0	1.000081
38000.0	214.1	-63.4	1.0**	355.6	563.9	246.2	61.9	1.000079
38500.0	208.9	-63.8	0.0**	347.6	563.4	248.0	61.9	1.000077
39000.0	203.8	-63.9	0.0**	339.4	563.2	250.2	62.1	1.000076
39500.0	198.8	-64.1	0.0**	331.3	563.0	252.5	62.2	1.000074
40000.0	194.0	-62.4	0.0**	320.6	565.3	255.0	62.5	1.000071
40500.0	189.3	-60.4	0.0**	309.9	568.0	257.6	62.7	1.000069
41000.0	184.7	-59.5	0.0**	301.3	569.1	258.2	64.3	1.000067
41500.0	180.3	-59.2	0.0**	293.6	569.5	258.7	65.9	1.000065
42000.0	176.0	-58.9	0.0**	286.2	570.0	259.0	67.7	1.000064
42500.0	171.8	-58.5	0.0**	278.9	570.5	259.3	69.5	1.000062
43000.0	167.7	-58.2	0.0**	271.8	570.9	259.8	72.1	1.000061
43500.0	163.7	-57.8	0.0**	264.9	571.4	260.4	75.2	1.000059
44000.0	159.8	-57.5	0.0**	258.2	571.9	261.1	77.6	1.000057
44500.0	156.0	-57.4	0.0**	251.9	571.9	261.7	78.6	1.000056
45000.0	152.3	-57.6	0.0**	246.2	571.7	262.4	79.6	1.000055
45500.0	148.7	-57.8	0.0**	240.6	571.4	263.1	77.4	1.000054
46000.0	145.2	-58.0	0.0**	235.1	571.1	263.8	75.1	1.000052
46500.0	141.7	-58.3	0.0**	229.8	570.8	262.9	71.6	1.000051
47000.0	138.3	-59.4	0.0**	225.4	569.3	261.4	67.6	1.000050
47500.0	135.0	-60.4	0.0**	221.1	567.9	260.2	64.8	1.000049
48000.0	131.7	-61.5	0.0**	216.9	566.5	259.6	64.3	1.000048

\*\* AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL.  
4 FEB. 65 0500 HRS MST  
ASCENSION NO. 118

UPPER AIR DATA  
0658003905  
WHITE SANDS SITE

WSTM SITE COORD  
E 488.58  
N 185.06

TABLE X (Cont)

GEOMETRIC ALTITUDE MSL: FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA		INDE OF REFRA
		AIR DEGREES	DEWPOINT CENTIGRADE				DIRECTION DEGREES(TN)	SPEED KNOTS	
48500.0	128.6	-62.1	0.	-0.	212.2	565.7	259.0	63.9	1.0
49000.0	125.4	-62.1	0.	-0.	207.1	565.6	258.6	65.1	1.0
49500.0	122.4	-62.1	0.	-0.	202.1	565.6	258.4	66.7	1.0
50000.0	119.4	-62.2	0.	-0.	197.2	565.6	258.2	68.5	1.0
50500.0	116.5	-62.2	0.	-0.	192.4	565.6	259.2	72.6	1.0
51000.0	113.7	-62.2	0.	-0.	187.8	565.6	260.2	76.7	1.0
51500.0	111.0	-62.2	0.	-0.	183.3	565.5	260.8	79.1	1.0
52000.0	108.2	-63.1	0.	-0.	179.5	564.3	260.8	78.5	1.0
52500.0	105.6	-64.0	0.	-0.	175.9	563.1	260.9	78.0	1.0
53000.0	103.0	-65.0	0.	-0.	172.3	561.8	261.1	76.2	1.0
53500.0	100.4	-65.9	0.	-0.	168.8	560.6	261.3	73.6	1.0
54000.0	98.0	-66.8	0.	-0.	165.4	559.3	261.6	71.0	1.0
54500.0	95.5	-67.7	0.	-0.	162.0	558.1	262.6	67.3	1.0
55000.0	93.2	-68.6	0.	-0.	158.8	556.9	263.6	63.5	1.0
55500.0	90.9	-69.0	0.	-0.	155.1	556.4	264.6	59.8	1.0
56000.0	88.6	-69.3	0.	-0.	151.4	556.0	265.4	57.6	1.0
56500.0	86.4	-69.7	0.	-0.	147.9	555.3	266.2	55.3	1.0
57000.0	84.2	-70.6	0.	-0.	144.8	554.2	267.6	51.9	1.0
57500.0	82.1	-71.4	0.	-0.	141.7	553.1	269.7	46.9	1.0
58000.0	80.0	-72.2	0.	-0.	138.7	552.0	271.8	41.9	1.0
58500.0	78.0	-71.9	0.	-0.	135.0	552.4	271.7	39.0	1.0
59000.0	76.0	-71.6	0.	-0.	131.4	552.8	270.9	36.7	1.0
59500.0	74.1	-71.3	0.	-0.	127.9	553.3	270.0	34.4	1.0
60000.0	72.2	-71.0	0.	-0.	124.5	553.7	269.3	32.6	1.0
60500.0	70.4	-70.6	0.	-0.	121.1	554.1	268.6	30.7	1.0
61000.0	68.6	-70.3	0.	-0.	117.9	554.5	267.6	31.6	1.0
61500.0	66.9	-70.0	0.	-0.	114.7	555.0	266.2	33.7	1.0
62000.0	65.2	-69.7	0.	-0.	111.7	555.4	264.8	39.8	1.0
62500.0	63.6	-69.4	0.	-0.	108.7	555.8	265.6	41.3	1.0
63000.0	62.0	-69.1	0.	-0.	105.8	556.2	267.0	42.3	1.0

\*\*\* AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

UPPER AIR DATA									
STATION ALTITUDE	5000 HRS	REF. LINE	REF. LINE	REF. LINE	REF. LINE	REF. LINE	REF. LINE	REF. LINE	REF. LINE
4 FEB. 69	0500 HRS	0500 HRS	0500 HRS	0500 HRS	0500 HRS	0500 HRS	0500 HRS	0500 HRS	0500 HRS
ASCENSION NO.	00118	00118	00118	00118	00118	00118	00118	00118	00118
GEOMETRIC ALTITUDE	PRESSURE	TEMPERATURE	TEMPERATURE	TEMPERATURE	TEMPERATURE	TEMPERATURE	TEMPERATURE	TEMPERATURE	TEMPERATURE
MSL FEET	HILLBARS	DEGREES	CENTIGRADE	DEGREES	CENTIGRADE	DEGREES	CENTIGRADE	DEGREES	CENTIGRADE
63500.0	60.4	-68.8	0.0	-68.8	0.0	-68.8	0.0	-68.8	0.0
64000.0	58.9	-68.5	0.0	-68.5	0.0	-68.5	0.0	-68.5	0.0
64500.0	57.5	-68.2	0.0	-68.2	0.0	-68.2	0.0	-68.2	0.0
65000.0	56.1	-67.9	0.0	-67.9	0.0	-67.9	0.0	-67.9	0.0
65500.0	54.7	-67.5	0.0	-67.5	0.0	-67.5	0.0	-67.5	0.0
66000.0	53.3	-67.2	0.0	-67.2	0.0	-67.2	0.0	-67.2	0.0
66500.0	52.0	-66.9	0.0	-66.9	0.0	-66.9	0.0	-66.9	0.0
67000.0	50.7	-66.6	0.0	-66.6	0.0	-66.6	0.0	-66.6	0.0
67500.0	49.5	-66.3	0.0	-66.3	0.0	-66.3	0.0	-66.3	0.0
68000.0	48.2	-66.0	0.0	-66.0	0.0	-66.0	0.0	-66.0	0.0
68500.0	47.1	-65.7	0.0	-65.7	0.0	-65.7	0.0	-65.7	0.0
69000.0	45.9	-65.4	0.0	-65.4	0.0	-65.4	0.0	-65.4	0.0
69500.0	44.8	-65.1	0.0	-65.1	0.0	-65.1	0.0	-65.1	0.0
70000.0	43.7	-64.8	0.0	-64.8	0.0	-64.8	0.0	-64.8	0.0
70500.0	42.6	-64.5	0.0	-64.5	0.0	-64.5	0.0	-64.5	0.0
71000.0	41.5	-64.2	0.0	-64.2	0.0	-64.2	0.0	-64.2	0.0
71500.0	40.5	-63.9	0.0	-63.9	0.0	-63.9	0.0	-63.9	0.0
72000.0	39.5	-63.6	0.0	-63.6	0.0	-63.6	0.0	-63.6	0.0
72500.0	38.6	-63.3	0.0	-63.3	0.0	-63.3	0.0	-63.3	0.0
73000.0	37.6	-62.9	0.0	-62.9	0.0	-62.9	0.0	-62.9	0.0
73500.0	36.7	-62.6	0.0	-62.6	0.0	-62.6	0.0	-62.6	0.0
74000.0	35.8	-62.3	0.0	-62.3	0.0	-62.3	0.0	-62.3	0.0
74500.0	35.0	-62.0	0.0	-62.0	0.0	-62.0	0.0	-62.0	0.0
75000.0	34.1	-61.7	0.0	-61.7	0.0	-61.7	0.0	-61.7	0.0
75500.0	33.3	-61.4	0.0	-61.4	0.0	-61.4	0.0	-61.4	0.0
76000.0	32.5	-61.1	0.0	-61.1	0.0	-61.1	0.0	-61.1	0.0
76500.0	31.7	-60.8	0.0	-60.8	0.0	-60.8	0.0	-60.8	0.0
77000.0	31.0	-60.5	0.0	-60.5	0.0	-60.5	0.0	-60.5	0.0
77500.0	30.2	-60.2	0.0	-60.2	0.0	-60.2	0.0	-60.2	0.0
78000.0	29.5	-59.9	0.0	-59.9	0.0	-59.9	0.0	-59.9	0.0
WIND DATA									
TABLE A (CONT.)									
DENSITY	GM/CUBIC	SOUND	WIND	DIRECTION	SPEED	WIND	DIRECTION	SPEED	WIND
METER	METER	METER	DEGREES	DEGREES	KNOTS	DEGREES	DEGREES	KNOTS	DEGREES
102.0	102.0	338.3	270.0	270.0	270.0	270.0	270.0	270.0	270.0
103.0	103.0	338.3	270.0	270.0	270.0	270.0	270.0	270.0	270.0
104.0	104.0	338.3	270.0	270.0	270.0	270.0	270.0	270.0	270.0
105.0	105.0	338.3	270.0	270.0	270.0	270.0	270.0	270.0	270.0
106.0	106.0	338.3	270.0	270.0	270.0	270.0	270.0	270.0	270.0
107.0	107.0	338.3	270.0	270.0	270.0	270.0	270.0	270.0	270.0
108.0	108.0	338.3	270.0	270.0	270.0	270.0	270.0	270.0	270.0
109.0	109.0	338.3	270.0	270.0	270.0	270.0	270.0	270.0	270.0
110.0	110.0	338.3	270.0	270.0	270.0	270.0	270.0	270.0	270.0
111.0	111.0	338.3	270.0	270.0	270.0	270.0	270.0	270.0	270.0
112.0	112.0	338.3	270.0	270.0	270.0	270.0	270.0	270.0	270.0
113.0	113.0	338.3	270.0	270.0	270.0	270.0	270.0	270.0	270.0
114.0	114.0	338.3	270.0	270.0	270.0	270.0	270.0	270.0	270.0
115.0	115.0	338.3	270.0	270.0	270.0	270.0	270.0	270.0	270.0
116.0	116.0	338.3	270.0	270.0	270.0	270.0	270.0	270.0	270.0
117.0	117.0	338.3	270.0	270.0	270.0	270.0	270.0	270.0	270.0
118.0	118.0	338.3	270.0	270.0	270.0	270.0	270.0	270.0	270.0
119.0	119.0	338.3	270.0	270.0	270.0	270.0	270.0	270.0	270.0
120.0	120.0	338.3	270.0	270.0	270.0	270.0	270.0	270.0	270.0
121.0	121.0	338.3	270.0	270.0	270.0	270.0	270.0	270.0	270.0
122.0	122.0	338.3	270.0	270.0	270.0	270.0	270.0	270.0	270.0
123.0	123.0	338.3	270.0	270.0	270.0	270.0	270.0	270.0	270.0
124.0	124.0	338.3	270.0	270.0	270.0	270.0	270.0	270.0	270.0
125.0	125.0	338.3	270.0	270.0	270.0	270.0	270.0	270.0	270.0
126.0	126.0	338.3	270.0	270.0	270.0	270.0	270.0	270.0	270.0
127.0	127.0	338.3	270.0	270.0	270.0	270.0	270.0	270.0	270.0
128.0	128.0	338.3	270.0	270.0	270.0	270.0	270.0	270.0	270.0
129.0	129.0	338.3	270.0	270.0	270.0	270.0	270.0	270.0	270.0
130.0	130.0	338.3	270.0	270.0	270.0	270.0	270.0	270.0	270.0
131.0	131.0	338.3	270.0	270.0	270.0	270.0	270.0	270.0	270.0
132.0	132.0	338.3	270.0	270.0	270.0	270.0	270.0	270.0	270.0
133.0	133.0	338.3	270.0	270.0	270.0	270.0	270.0	270.0	270.0
134.0	134.0	338.3	270.0	270.0	270.0	270.0	270.0	270.0	270.0
135.0	135.0	338.3	270.0	270.0	270.0	270.0	270.0	270.0	270.0
136.0	136.0	338.3	270.0	270.0	270.0	270.0	270.0	270.0	270.0
137.0	137.0	338.3	270.0	270.0	270.0	270.0	270.0	270.0	270.0
138.0	138.0	338.3	270.0	270.0	270.0	270.0	270.0	270.0	270.0
139.0	139.0	338.3	270.0	270.0	270.0	270.0	270.0	270.0	270.0
140.0	140.0	338.3	270.0	270.0	270.0	270.0	270.0	270.0	270.0
141.0	141.0	338.3	270.0	270.0	270.0	270.0	270.0	270.0	270.0
142.0	142.0	338.3	270.0	270.0	270.0	270.0	270.0	270.0	270.0
143.0	143.0	338.3	270.0	270.0	270.0	270.0	270.0	270.0	270.0
144.0	144.0	338.3	270.0	270.0	270.0	270.0	270.0	270.0	270.0
145.0	145.0	338.3	270.0	270.0	270.0	270.0	270.0	270.0	270.0
146.0	146.0	338.3	270.0	270.0	270.0	270.0	270.0	270.0	270.0
147.0	147.0	338.3	270.0	270.0	270.0	270.0	270.0	270.0	270.0
148.0	148.0	338.3	270.0	270.0	270.0	270.0	270.0	270.0	270.0
149.0	149.0	338.3	270.0	270.0	270.0	270.0	270.0	270.0	270.0
150.0	150.0	338.3	270.0	270.0	270.0	270.0	270.0	270.0	270.0

\*\* AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION

STATION ALTITUDE 3989.0 FEET MSL

4 FEB. 69

ASCENSION NO. 118

UPPER AIR DATA

0658003905

WHITE SANDS SITE

WSTM SITE COORDINATES

E 488,580 FEET

N 185,045 FEET

TABLE X (Cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA		INDEX OF REFRACTION
							DIRECTION DEGREES(TN)	SPEED KNOTS	
78500.0	28.8	-60.0	0.	-0. **	47.1	568.5			1.000010
79000.0	28.1	-60.1	0.	-0. **	46.0	568.4			1.000010
79500.0	27.4	-60.1	0.	-0. **	44.9	568.3			1.000010
80000.0	26.8	-60.2	0.	-0. **	43.8	568.2			1.000010
80500.0	26.1	-60.3	0.	-0. **	42.8	568.1			1.000010

\*\* AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.



STATION ALTITUDE 3989.0 FEET MSL  
4 FEB. 69 0500 HRS MST  
ASCENSION NO. : 118

MANDATORY LEVELS  
06580003905  
WHITE SANDS SITE

MANDATORY SITE COORDINATES  
E 488, 880 FEET  
N 185, 043 FEET

TABLE XI

PRESSURE: GEOPOTENTIAL		TEMPERATURE		REL. HUM.		WIND DATA	
MILLIBARS	FEET	AIR DEGREES CENTIGRADE	DEWPOINT CENTIGRADE	PERCENT	DIRECTION DEGREES(TN)	SPEED KNOTS	
850.0	5100.	4.3	-12.4	29.	66.3	5.3	
800.0	6714.	2.7	-11.9	33.	139.8	11.6	
750.0	8422.	2.0	-9.2	43.	157.6	14.8	
700.0	10244.	0.1	-6.2	63.	178.7	17.7	
650.0	12181.	-3.4	-17.4	33.	216.3	14.2	
600.0	14242.	-6.8	-28.0	17.	237.7	17.7	
550.0	16454.	-10.6	-31.0	17.	241.9	26.3	
500.0	18841.	-14.8	-34.0	16.	245.7	31.9	
450.0	21426.	-21.0	-35.5	26.	291.5	31.5	
400.0	24241.	-27.8	-31.8	69.	258.7	42.1	
350.0	27345.	-35.1	-39.0	68.	252.6	52.8	
300.0	30808.	-43.7	-47.8	65.	256.1	58.0	
250.0	34737.	-54.3	-63.2	34.**	245.8	62.1	
200.0	39299.	-64.0	0.	-0.**	251.9	62.2	
175.0	42026.	-58.8	0.	-0.**	259.1	68.1	
150.0	45215.	-57.7	0.	-0.**	262.8	78.2	
125.0	48951.	-62.1	0.	-0.**	258.6	65.3	
100.0	53456.	-66.0	0.	-0.**	261.4	73.1	
80.0	57830.	-72.2	0.	-0.**	271.8	42.0	
70.0	60419.	-70.6	0.	-0.**	268.5	30.4	
60.0	63434.	-68.7	0.	-0.**	268.9	44.0	
50.0	67035.	-66.4	0.	-0.**	274.5	37.1	
40.0	71437.	-63.7	0.	-0.**	277.2	41.9	
30.0	77369.	-59.9	0.	-0.**	298.3	29.0	

\*\* AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL  
 4 FEB. 69 0800 HRS MST  
 ASCENSION NO. 119

SIGNIFICANT LEVEL DATA  
 0658003906  
 WHITE SANDS SITE

WSTM SITE COORDINATES  
 E 488,580 FEET  
 N 185,045 FEET

TABLE XII

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE		REL. HUM. PERCENT
		AIR DEGREES	DEWPOINT CENTIGRADE	
887.3	3989.0	-3.0	-14.2	42.0
873.0	4417.7	4.9	-12.6	27.0
781.0	7385.7	2.4	-9.5	41.0
731.0	9139.3	1.5	-8.3	48.0
716.0	9689.0	2.3	-8.1	54.0
709.0	9949.9	2.6	-11.7	34.0
653.0	12113.2	-3.1	-13.4	45.0
632.0	12960.5	-5.2	-14.1	50.0
579.0	15211.9	-7.4	-29.0	16.0
490.0	19397.9	-18.0	-33.3	25.0
475.0	20159.1	-20.0	-30.5	39.0
466.0	20625.3	-20.5	-26.4	60.0
432.0	22451.9	-25.4	-30.2	65.0
425.0	22841.7	-25.8	-30.6	65.0
417.0	23295.5	-25.0	-29.2	69.0
400.0	24287.2	-26.9	-31.5	66.0
321.0	29375.4	-34.5	-46.9	46.0
302.0	30738.9	-43.2	-50.2	47.0
254.0	34484.7	-54.2	0.	-0. **
212.0	38217.0	-63.9	0.	-0. **
188.0	40468.6	-59.4	0.	-0. **
160.0	44018.5	-56.4	0.	-0. **
120.0	49960.2	-62.0	0.	-0. **
116.0	50657.6	-58.3	0.	-0. **
78.0	58677.7	-69.6	0.	-0. **
70.0	60806.0	-69.8	0.	-0. **
24.0	82541.0	-56.5	0.	-0. **
18.5	88055.1	-52.5	0.	-0. **
11.5	98235.9	-52.0	0.	-0. **
10.0	101261.5	-48.1	0.	-0. **
6.4	111267.9	-36.2	0.	-0. **

\*\* RELATIVE HUMIDITY NOT SUPPLIED. ZERO VALUE ASSUMED FOR COMPUTATIONS.

STATION ALTITUDE 3989.0 FEET MSL  
 4 FEB. 69  
 ASCENSION NO. 119

UPPER AIR DATA  
 04900000000  
 WHITE SANDS SITE  
 TALL KITE

WSTM SITE COORDINATES  
 24° 42' 500 FEET  
 N 102° 04' 00 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	AIR TEMPERATURE DEGREES CENTIGRADE	TEMPERATURE DEWPOINT	REL. HUM. PERCENT	DENSITY GM/CM <sup>3</sup> MEYER	SPEED OF SOUND KNOTS	WIND DIRECTION DEGREES (T)	WIND SPEED KNOTS	INDEX OF REFRACTION
3989.0	887.3	-3.0	-14.2	42.0	1142.4	640.3	0.4	0.0	1.000265
4000.0	886.9	-2.8	-14.1	41.6	1142.0	640.5	0.8	0.1	1.000265
4500.0	870.3	4.8	-12.5	27.4	1089.7	649.5	70.0	2.3	1.000254
5000.0	854.1	4.4	-11.8	29.7	1071.0	649.1	71.2	4.6	1.000251
5500.0	838.3	4.0	-11.2	32.1	1052.5	648.6	104.4	6.9	1.000247
6000.0	822.7	3.6	-10.7	34.5	1034.5	648.1	141.7	9.2	1.000244
6500.0	807.4	3.1	-10.2	36.8	1016.8	647.7	150.7	11.4	1.000240
7000.0	792.4	2.7	-9.8	39.2	999.4	647.2	156.7	13.4	1.000237
7500.0	777.6	2.3	-9.5	41.5	982.1	646.8	161.1	14.3	1.000234
8000.0	763.1	2.1	-9.1	43.5	964.8	646.5	165.8	15.2	1.000230
8500.0	748.8	1.8	-8.7	45.4	947.3	646.3	172.9	15.5	1.000227
9000.0	734.9	1.6	-8.4	47.4	930.4	645.9	179.9	15.6	1.000224
9500.0	721.1	2.0	-6.8	51.9	911.3	646.5	186.6	14.8	1.000221
10000.0	707.7	2.5	-11.7	34.3	893.4	646.9	194.5	14.1	1.000211
10500.0	694.3	1.2	-12.0	36.8	880.8	645.3	209.0	13.2	1.000208
11000.0	681.2	-0.2	-12.4	39.3	868.3	643.8	215.3	13.1	1.000205
11500.0	668.4	-1.5	-12.8	41.9	856.1	642.2	225.5	14.0	1.000202
12000.0	655.8	-2.8	-13.3	44.4	844.1	640.6	234.3	15.9	1.000199
12500.0	643.3	-4.1	-13.7	47.3	831.9	639.1	242.5	16.1	1.000196
13000.0	631.0	-5.2	-14.2	49.4	819.6	637.7	243.8	19.9	1.000193
13500.0	618.9	-5.7	-16.7	41.9	805.5	637.1	244.9	21.6	1.000188
14000.0	607.0	-6.2	-19.5	34.3	791.6	636.4	246.1	23.3	1.000183
14500.0	595.3	-6.7	-22.8	26.8	777.9	635.8	246.5	24.8	1.000179
15000.0	583.8	-7.2	-26.9	19.2	764.5	635.1	244.3	25.6	1.000174
15500.0	572.4	-8.1	-29.2	16.6	752.2	634.0	242.9	26.8	1.000170
16000.0	561.1	-9.4	-29.6	17.7	740.9	632.5	242.6	26.8	1.000168
16500.0	550.0	-10.7	-30.0	18.8	729.8	631.0	242.2	28.6	1.000165
17000.0	539.2	-11.9	-30.5	19.8	718.9	629.4	241.5	29.6	1.000163
17500.0	528.5	-13.2	-31.0	20.9	708.1	627.9	241.6	30.1	1.000160
18000.0	518.1	-14.5	-31.6	22.0	697.6	626.4	241.9	30.8	1.000156

STATION ALTITUDE 3989.0 FEET MSL

4 FEB. 69

ASCENSION NO. 119

UPPER AIR DATA

0658003906

WHITE SANDS SITE

WSTM SITE COORDINATES

E 488,580 FEET

N 185,045 FEET

TABLE XIII (Cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	AIR TEMPERATURE DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DIRECTION DEGREES (WN)	WIND SPEED KNOTS	INDEX OF REFRACTION
18500.0	507.9	-15.7	23.1	687.2	624.8	242.6	30.9	1.000155
19000.0	497.8	-17.0	24.1	676.9	623.3	243.3	30.9	1.000153
19500.0	488.0	-18.3	26.9	666.8	621.7	243.6	30.6	1.000151
20000.0	478.1	-19.6	36.1	656.7	620.2	243.7	30.3	1.000149
20500.0	468.4	-20.4	54.4	645.3	619.2	244.3	29.0	1.000148
21000.0	458.8	-21.5	61.0	634.9	617.9	244.9	27.6	1.000145
21500.0	449.4	-22.8	62.4	625.2	616.2	246.0	26.8	1.000143
22000.0	440.2	-24.2	63.8	615.7	614.5	247.4	26.2	1.000140
22500.0	431.1	-25.4	65.0	606.2	613.0	251.7	28.3	1.000138
23000.0	422.2	-25.5	66.4	593.8	612.9	255.4	30.6	1.000135
23500.0	413.4	-25.4	68.4	581.1	613.0	257.6	34.0	1.000133
24000.0	404.9	-26.3	66.9	571.3	611.8	259.2	37.3	1.000130
24500.0	396.3	-27.4	65.2	561.7	610.5	260.1	40.5	1.000128
25000.0	387.9	-28.7	63.2	552.5	608.9	259.2	42.4	1.000125
25500.0	379.6	-29.9	61.2	543.5	607.4	257.4	43.6	1.000123
26000.0	371.4	-31.1	59.3	534.6	605.8	255.7	45.6	1.000121
26500.0	363.5	-32.4	57.3	525.9	604.3	254.1	47.9	1.000119
27000.0	355.7	-33.6	55.3	517.3	602.7	252.2	50.5	1.000116
27500.0	348.1	-34.9	53.4	508.9	601.1	250.3	53.3	1.000114
28000.0	340.7	-36.1	51.4	500.6	599.6	249.7	55.6	1.000112
28500.0	333.4	-37.3	49.4	492.5	598.0	249.5	57.5	1.000110
29000.0	326.3	-38.6	47.5	484.5	596.4	249.5	57.7	1.000109
29500.0	319.2	-39.8	46.1	476.6	594.8	249.4	57.4	1.000107
30000.0	312.2	-41.2	46.5	468.8	593.1	250.1	56.3	1.000105
30500.0	305.2	-42.6	46.8	461.2	591.3	251.0	54.9	1.000103
31000.0	298.4	-44.0	43.7**	453.6	589.5	251.2	53.9	1.000101
31500.0	291.6	-45.4	37.4**	446.1	587.6	251.2	53.0	1.000100
32000.0	284.9	-46.9	31.2**	438.7	585.7	250.8	53.1	1.000098
32500.0	278.4	-48.4	24.9**	431.5	583.8	250.4	53.4	1.000096
33000.0	272.0	-49.8	18.6**	424.4	581.9	249.4	54.2	1.000095

\*\* AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL  
 4 FEB. 69  
 ASCENSION NO. 1119

UPPER AIR DATA  
 0658003906  
 WHITE SANDS SITE

WSTM SITE COORDINATES  
 E 488,580 FEET  
 N 183,045 FEET

TABLE XIII (Cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUMID. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DIRECTION DEGREES (TN)	WIND SPEED KNOTS	INDEX OF REFRACTION
33500.0	265.8	-51.3	12.4**	417.5	560.0	248.4	55.1	1.000093
34000.0	259.8	-52.8	6.1**	410.7	578.0	248.0	55.8	1.000091
34500.0	253.8	-54.2	-0.0	404.0	576.1	247.7	56.5	1.000090
35000.0	247.7	-55.5	-0.0	396.7	574.4	247.6	56.6	1.000088
35500.0	241.8	-56.8	-0.0	389.5	572.7	247.3	57.2	1.000087
36000.0	236.0	-58.1	-0.0	382.5	571.0	246.8	58.8	1.000085
36500.0	230.4	-59.4	-0.0	375.0	569.2	246.5	59.6	1.000084
37000.0	224.9	-60.7	-0.0	368.8	567.5	246.5	58.7	1.000082
37500.0	219.5	-62.0	-0.0	362.2	565.8	247.2	58.2	1.000081
38000.0	214.2	-63.3	-0.0	355.8	564.0	248.9	59.0	1.000079
38500.0	209.1	-63.4	-0.0	347.3	564.0	250.7	59.7	1.000077
39000.0	204.0	-62.5	-0.0	337.4	565.2	252.9	60.0	1.000075
39500.0	199.1	-61.5	-0.0	327.8	566.4	255.1	60.4	1.000073
40000.0	194.3	-60.6	-0.0	318.5	567.6	256.4	62.5	1.000071
40500.0	189.6	-59.7	-0.0	309.4	568.9	257.7	64.6	1.000069
41000.0	185.0	-59.1	-0.0	301.2	569.7	257.3	66.4	1.000067
41500.0	180.6	-58.7	-0.0	293.4	570.3	256.6	68.1	1.000065
42000.0	176.3	-58.2	-0.0	285.8	570.9	255.4	69.9	1.000064
42500.0	172.1	-57.8	-0.0	278.4	571.5	253.8	72.0	1.000062
43000.0	168.0	-57.3	-0.0	271.3	572.1	252.5	74.2	1.000060
43500.0	164.0	-56.9	-0.0	264.3	572.6	252.4	77.2	1.000059
44000.0	160.1	-56.4	-0.0	257.4	573.2	252.2	80.1	1.000057
44500.0	156.3	-56.9	-0.0	251.8	572.7	253.9	81.7	1.000056
45000.0	152.6	-57.3	-0.0	246.3	572.0	255.6	83.2	1.000055
45500.0	148.9	-57.8	-0.0	240.9	571.4	257.8	82.8	1.000054
46000.0	145.4	-58.3	-0.0	235.7	570.8	260.1	81.8	1.000052
46500.0	141.9	-58.7	-0.0	230.6	570.2	261.0	80.2	1.000051
47000.0	138.5	-59.2	-0.0	225.5	569.5	260.8	78.1	1.000050
47500.0	135.2	-59.7	-0.0	220.6	568.9	260.2	75.8	1.000049
48000.0	131.7	-60.2	-0.0	215.8	568.3	258.1	73.1	1.000048

\*\* AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL  
 4 FEB. 69 0800 HRS MST  
 ASCENSION NO. 119

UPPER AIR DATA  
 0658003906  
 WHITE SANDS SITE

WSYM SITE COORDINATES  
 E 488,580 FEET  
 N 185,045 FEET

TABLA XIII (Cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES (TN)	SPEED KNOTS	INDEX OF REFRACTION
48500.0	128.8	-60.6	-0.0	211.1	567.6	256.0	70.5	1.000047
49000.0	125.7	-61.1	-0.0	206.5	567.0	254.0	66.8	1.000046
49500.0	122.7	-61.6	-0.0	202.1	566.4	252.0	63.0	1.000045
50000.0	119.8	-61.8	-0.0	197.4	566.1	250.7	59.6	1.000044
50500.0	116.9	-59.1	-0.0	190.3	569.6	249.8	56.5	1.000042
51000.0	114.1	-58.0	-0.0	185.4	570.1	249.4	53.8	1.000041
51500.0	111.3	-59.5	-0.0	181.4	569.2	250.0	51.9	1.000040
52000.0	108.5	-60.2	-0.0	177.6	568.2	250.6	50.2	1.000040
52500.0	105.9	-60.9	-0.0	173.8	567.3	250.6	50.2	1.000039
53000.0	103.3	-61.6	-0.0	170.1	566.3	250.6	50.2	1.000038
53500.0	100.8	-62.3	-0.0	166.5	565.4	250.6	50.3	1.000037
54000.0	98.3	-63.0	-0.0	163.0	564.5	250.6	50.3	1.000036
54500.0	95.9	-63.7	-0.0	159.6	563.5	250.2	50.0	1.000036
55000.0	93.6	-64.4	-0.0	156.2	562.6	249.0	49.1	1.000035
55500.0	91.3	-65.1	-0.0	152.9	561.6	247.8	48.2	1.000034
56000.0	89.1	-65.8	-0.0	149.7	560.7	246.4	47.8	1.000033
56500.0	86.9	-66.5	-0.0	146.5	559.7	245.0	47.3	1.000033
57000.0	84.8	-67.2	-0.0	143.4	558.7	244.4	46.7	1.000032
57500.0	82.7	-67.9	-0.0	140.4	557.8	244.3	46.1	1.000031
58000.0	80.7	-68.6	-0.0	137.4	556.8	245.1	45.6	1.000031
58500.0	78.7	-69.3	-0.0	134.5	555.9	247.3	45.7	1.000030
59000.0	76.7	-69.6	-0.0	131.4	555.5	249.6	45.9	1.000029
59500.0	74.8	-69.7	-0.0	128.1	555.4	252.4	47.2	1.000029
60000.0	72.9	-69.7	-0.0	124.9	555.4	255.3	48.5	1.000028
60500.0	71.1	-69.8	-0.0	121.8	555.3	257.2	49.9	1.000027
61000.0	69.3	-69.7	-0.0	118.7	555.4	259.0	51.4	1.000026
61500.0	67.6	-69.4	-0.0	115.7	555.8	260.7	52.8	1.000026
62000.0	66.0	-69.1	-0.0	112.7	556.3	262.3	54.0	1.000025
62500.0	64.4	-68.8	-0.0	109.8	556.7	264.0	55.2	1.000024
63000.0	62.8	-68.5	-0.0	106.9	557.1	265.4	55.8	1.000024

\*\* AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATIONS

STATION ALTITUDE 3989.0 FEET MSL

4 FEB. 69

ASCENSION NO. 119

UPPER AIR DATA

0658003906

WHITE SANDS SITE

WSTM SITE COORDINATES

E 488,580 FEET

N 185,045 FEET

TABLE XIII (Cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT DEGREES	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES (TN)	SPEED KNOTS	INDEX OF REFRACTION
63500.0	61.3	-68.2	0.	-0. **	104.2	557.5	256.7	56.2	1.000023
64000.0	59.8	-67.8	0.	-0. **	101.5	557.9	268.0	56.3	1.000023
64500.0	58.4	-67.5	0.	-0. **	98.9	558.3	270.6	53.8	1.000022
65000.0	56.9	-67.2	0.	-0. **	96.3	558.8	273.2	51.3	1.000021
65500.0	55.6	-66.9	0.	-0. **	93.9	559.2	274.8	47.8	1.000021
66000.0	54.2	-66.6	0.	-0. **	91.4	559.6	275.0	42.7	1.000020
66500.0	52.9	-66.3	0.	-0. **	89.1	560.0	275.1	37.5	1.000020
67000.0	51.6	-66.0	0.	-0. **	86.8	560.4	277.3	33.3	1.000019
67500.0	50.3	-65.7	0.	-0. **	84.5	560.8	280.4	29.3	1.000019
68000.0	49.1	-65.4	0.	-0. **	82.4	561.2	283.3	25.4	1.000018
68500.0	47.9	-65.1	0.	-0. **	80.2	561.6	282.8	25.0	1.000018
69000.0	46.8	-64.8	0.	-0. **	78.2	562.1	282.2	24.5	1.000017
69500.0	45.6	-64.5	0.	-0. **	76.2	562.5	281.5	25.8	1.000017
70000.0	44.5	-64.2	0.	-0. **	74.2	562.9	280.5	30.5	1.000017
70500.0	43.4	-63.9	0.	-0. **	72.3	563.3	279.6	35.2	1.000016
71000.0	42.4	-63.6	0.	-0. **	70.4	563.7	279.1	39.0	1.000016
71500.0	41.3	-63.3	0.	-0. **	68.6	564.1	278.8	42.4	1.000015
72000.0	40.3	-63.0	0.	-0. **	66.9	564.5	278.5	45.8	1.000015
72500.0	39.4	-62.6	0.	-0. **	65.1	564.9	280.1	45.0	1.000014
73000.0	38.4	-62.3	0.	-0. **	63.5	565.4	281.8	44.1	1.000014
73500.0	37.5	-62.0	0.	-0. **	61.8	565.8	284.2	42.5	1.000014
74000.0	36.6	-61.7	0.	-0. **	60.2	566.2	290.5	37.2	1.000013
74500.0	35.7	-61.4	0.	-0. **	58.7	566.6	296.8	31.9	1.000013
75000.0	34.8	-61.1	0.	-0. **	57.2	567.0	302.5	27.1	1.000013
75500.0	33.9	-60.8	0.	-0. **	55.7	567.4	304.8	25.8	1.000012
76000.0	33.1	-60.5	0.	-0. **	54.3	567.8	307.1	24.5	1.000012
76500.0	32.3	-60.2	0.	-0. **	52.9	568.2	308.1	23.6	1.000012
77000.0	31.5	-59.9	0.	-0. **	51.5	568.6	302.5	24.5	1.000011
77500.0	30.8	-59.6	0.	-0. **	50.2	569.0	296.9	25.4	1.000011
78000.0	30.0	-59.3	0.	-0. **	48.9	569.4	292.1	25.3	2.000011

\*\* AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

UPPER AIR DATA  
0658003906  
WHITE SANDS SITE

STATION ALTITUDE 3989.0 FEET MSL  
4 FEB. 65 0800 HRS MST  
ASCENSION NO. 119

WSTM SITE COORDINATES  
E 488,580 FEET  
N 185,045 FEET

TABLE XIII (Cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF		WIND DATA DIRECTION DEGREES (TN)	SPEED KNOTS	INDEX OF REFRACTION
					SOUND KNOTS	OF			
78500.0	29.3	-59.0	-0. **	47.6	569.8		290.8	27.2	1.000011
79000.0	28.6	-58.7	-0. **	46.4	570.3		289.5	28.1	1.000010
79500.0	27.9	-58.4	-0. **	45.2	570.7		288.5	28.9	1.000010
80000.0	27.2	-58.1	-0. **	44.1	571.1		288.5	29.1	1.000010
80500.0	26.5	-57.7	-0. **	42.9	571.5		288.5	29.3	1.000010
81000.0	25.9	-57.4	-0. **	41.8	571.9		289.0	29.5	1.000009
81500.0	25.3	-57.1	-0. **	40.7	572.3		291.3	29.9	1.000009
82000.0	24.6	-56.8	-0. **	39.7	572.7		293.5	30.4	1.000009
82500.0	24.0	-56.5	-0. **	38.7	573.1		295.4	31.0	1.000009
83000.0	23.5	-56.2	-0. **	37.7	573.6		294.8	33.2	1.000008
83500.0	22.9	-55.8	-0. **	36.8	574.0		294.1	35.4	1.000008
84000.0	22.4	-55.4	-0. **	35.9	574.5		293.5	37.6	1.000008
84500.0	21.9	-55.1	-0. **	35.0	575.0		294.3	37.5	1.000008
85000.0	21.4	-54.7	-0. **	34.1	575.5		295.5	36.8	1.000008
85500.0	20.9	-54.4	-0. **	33.2	576.0		296.6	36.0	1.000007
86000.0	20.4	-54.0	-0. **	32.4	576.4		297.6	35.5	1.000007
86500.0	19.9	-53.6	-0. **	31.6	576.9		298.2	35.3	1.000007
87000.0	19.4	-53.3	-0. **	30.8	577.4		298.8	35.1	1.000007
87500.0	19.0	-52.9	-0. **	30.0	577.9		299.4	34.9	1.000007
88000.0	18.5	-52.5	-0. **	29.3	578.3		299.9	34.8	1.000007
88500.0	18.1	-52.5	-0. **	28.6	578.4		300.5	34.6	1.000006
89000.0	17.7	-52.5	-0. **	27.9	578.5		301.1	34.4	1.000006
89500.0	17.3	-52.4	-0. **	27.3	578.5		301.8	34.3	1.000006
90000.0	16.9	-52.4	-0. **	26.7	578.5		303.0	34.5	1.000006
90500.0	16.5	-52.4	-0. **	26.0	578.6		304.1	34.7	1.000006
91000.0	16.1	-52.4	-0. **	25.4	578.6		305.2	34.9	1.000006
91500.0	15.8	-52.3	-0. **	24.9	578.6		308.6	34.7	1.000006
92000.0	15.4	-52.3	-0. **	24.3	578.6		312.2	34.5	1.000005
92500.0	15.0	-52.3	-0. **	23.7	578.7		315.8	34.3	1.000005
93000.0	14.7	-52.3	-0. **	23.2	578.7		317.9	34.5	1.000005

\*\* AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.



STATION ALTITUDE 3989.0 FEET MSL  
 4 FEB. 69 0800 HRS MST  
 ASCENSION NO. 119

UPPER AIR DATA  
 0658003906  
 WHITE SANDS SITE

U STM SITE COORDINATES  
 E 488,580 FEET  
 N 183,045 FEET

TABLE XIII (Cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	SPEED KNOTS	INDEX OF REFRACTION
93500.0	14.3	-52.2	-0. **	22.6	578.7	317.5	35.4	1.000005
94000.0	14.0	-52.2	-0. **	22.1	578.8	317.1	36.2	1.000005
94500.0	13.7	-52.2	-0. **	21.6	578.8	316.7	37.1	1.000005
95000.0	13.4	-52.2	-0. **	21.1	578.8	316.5	39.0	1.000005
95500.0	13.1	-52.1	-0. **	20.6	578.9	316.4	41.1	1.000005
96000.0	12.8	-52.1	-0. **	20.1	578.9	316.2	43.1	1.000004
96500.0	12.5	-52.1	-0. **	19.7	578.9	315.9	44.8	1.000004
97000.0	12.2	-52.1	-0. **	19.2	579.0	315.3	45.9	1.000004
97500.0	11.9	-52.0	-0. **	18.8	579.0	314.6	47.0	1.000004
98000.0	11.6	-52.0	-0. **	18.3	579.0	314.2	48.2	1.000004
98500.0	11.4	-51.7	-0. **	17.9	579.5	315.9	48.1	1.000004
99000.0	11.1	-51.0	-0. **	17.4	580.3	317.8	47.8	1.000004
99500.0	10.8	-50.4	-0. **	17.0	581.2	319.8	47.6	1.000004
100000.0	10.6	-49.7	-0. **	16.5	582.0	323.3	46.5	1.000004
100500.0	10.4	-49.1	-0. **	16.1	582.9	329.7	43.9	1.000003
101000.0	10.1	-48.4	-0. **	15.7	583.7	336.1	41.3	1.000003
101500.0	9.9	-47.8	-0. **	15.3	584.5	342.5	38.7	1.000003
102000.0	9.7	-47.2	-0. **	14.9	585.3	347.6	37.0	1.000003
102500.0	9.5	-46.6	-0. **	14.6	586.0	352.4	35.6	1.000003
103000.0	9.3	-46.0	-0. **	14.2	586.8	357.2	34.2	1.000003
103500.0	9.0	-45.4	-0. **	13.8	587.6	361.8	32.8	1.000003
104000.0	8.9	-44.8	-0. **	13.5	588.3	365.1	31.8	1.000003
104500.0	8.7	-44.2	-0. **	13.2	589.1	368.4	30.7	1.000003
105000.0	8.5	-43.7	-0. **	12.9	589.9	371.7	29.6	1.000003
105500.0	8.3	-43.1	-0. **	12.5	590.6	375.0	27.9	1.000003
106000.0	8.1	-42.5	-0. **	12.2	591.4	378.3	25.4	1.000003
106500.0	7.9	-41.9	-0. **	11.9	592.2	381.6	22.9	1.000003
107000.0	7.7	-41.3	-0. **	11.6	592.9	384.9	20.5	1.000003
107500.0	7.6	-40.7	-0. **	11.3	593.7	388.2	..	1.000003
108000.0	7.4	-40.1	-0. **	11.1	594.4	391.5	..	1.000002

\*\* AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL  
 4 FEB. 69 Q800 HRS MST  
 ASCENSION NO. 119

UPPER AIR DATA  
 0658003906  
 WHITE SANDS SITE

WSTM SITE COORDINATES  
 E 488,580 FEET  
 N 185,045 FEET

TABLE XIII (Cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	SPEED KNOTS	INDEX OF REFRACTION
108500.0	7.2	-39.5	0.	10.8	595.2			1.0000002
109000.0	7.1	-38.9	0.	10.5	596.0			1.0000002
109500.0	6.9	-38.3	0.	10.3	596.7			1.0000002
110000.0	6.8	-37.7	0.	10.0	597.5			1.0000002
110500.0	6.6	-37.1	0.	9.8	598.2			1.0000002
111000.0	6.5	-36.5	0.	9.5	599.0			1.0000002

\*\* AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL

4 FEB. 65

ASCENSION NO. 119

MANDATORY LEVELS

0658003904

WHITE SANDS SITE

MSTN SITE COORDINATES

E 488.580 FEET

N 189.045 FEET

TABLE XIV

PRESSURE GEOPOTENTIAL		TEMPERATURE		REL. HUM.		WIND DATA	
MILLIBARS	FEET	AIR	DEWPOINT	PERCENT		DIRECTION	SPEED
		DEGREES	CENTIGRADE			(TN)	KNOTS
850.0	5130.	4.3	-11.6	30.		80.5	5.2
800.0	6744.	2.9	-10.0	38.		153.7	12.4
750.0	8455.	1.8	-8.8	45.		172.3	15.4
700.0	10282.	1.7	-11.9	36.		200.5	13.5
650.0	12224.	-3.4	-13.5	46.		238.0	16.9
600.0	14287.	-6.5	-21.4	30.		246.9	24.4
550.0	16503.	-10.7	-30.0	19.		242.1	29.6
500.0	18880.	-16.7	-32.7	24.		243.1	30.9
450.0	21447.	-22.8	-28.1	62.		245.9	26.9
400.0	24255.	-26.9	-31.5	66.		259.7	39.1
350.0	27367.	-34.5	-40.8	34.		250.7	52.8
300.0	30836.	-43.6	-50.9	45.**		251.2	54.1
250.0	34756.	-55.1	0.	-0.**		247.6	56.6
200.0	39319.	-61.7	0.	-0.**		254.7	60.3
175.0	42060.	-58.1	0.	-0.**		254.9	70.5
150.0	45260.	-57.7	0.	-0.**		257.1	83.1
125.0	49004.	-61.2	0.	-0.**		253.5	65.9
100.0	53562.	-62.5	0.	-0.**		250.6	50.3
80.0	58011.	-68.9	0.	-0.**		245.0	45.6
70.0	60623.	-69.8	0.	-0.**		258.2	50.8
60.0	63649.	-67.9	0.	-0.**		267.6	56.4
50.0	67266.	-65.6	0.	-0.**		280.3	29.4
40.0	71746.	-62.8	0.	-0.**		278.5	45.8
30.0	77609.	-59.3	0.	-0.**		292.5	26.1
25.0	81376.	-57.0	0.	-0.**		292.2	30.1
20.0	86046.	-53.7	0.	-0.**		298.1	35.4
15.0	92143.	-52.3	0.	-0.**		316.2	34.3
10.0	100783.	-48.1	0.	-0.**		339.5	39.9
7.0	108660.	-38.6	0.	-0.**			

\*\* AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

RELEASE TIME (MST)		SECOND-STAGE IMPACT DISPLACEMENT IN MILES DUE TO WIND								AZI- MUTH (DEG- REES)	THEORETICAL IMPACT FROM LAUNCHER (IN MILES)				
		9-216 FT				216-4100 FT								TOTAL	
		N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W						
RAWIN- SONDE	PIBAL	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W						
0500	0600	5.7N	1.3E	2.1N	5.1E	6.2S	26.3W	1.6N	19.9W	358.2	68.2	68.2N	2.1W		
0500	0630	6.2N	1.5E	2.6N	2.8E	6.2S	26.3W	2.6N	22.0W	356.5	69.3	69.2N	4.2W		
0500	0700	4.4N	2.7E	0.6N	4.5E	6.2S	26.3W	1.2S	19.1W	358.9	65.4	65.4N	1.3W		
0500	0715	3.7N	1.5E	0.5S	3.3E	6.2S	26.3W	3.0S	21.5W	356.7	63.7	63.6N	3.7W		
0500	0730	3.3N	0.4W	0.1N	1.4E	6.2S	26.3W	2.8S	23.3W	355.1	54.0	N	5.5W		
0500	0745	1.9N	0.3W	1.0S	2.7E	6.2S	26.3W	5.3S	23.9W	354.5	61.6	61.3N	6.1W		
0500	0800	3.5N	1.3E	1.7S	3.6E	6.2S	26.3W	4.4S	21.4W	356.7	62.3	62.2N	3.6W		
*0800	*0811	3.7N	1.2E	0.5N	2.5E	5.7S	26.4W	1.5S	22.7W	355.7	65.3	65.1N	4.9W		

AZI- MUTH (DEG- REES)	MILES FROM LAUNCHER		
	RANGE	N-S	E-W
018.0	70.0	66.6N	21.6E
015.0	68.9	66.6N	17.9E
357.0	70.0	69.9N	3.7W
346.2	64.3	62.5N	15.4W
035.0	2.0	1.6N	1.1E
N/A	N/A	N/A	N/A

TABLE XV. IMPACT PREDICTION DATA  
NIKE-HYDAC STV-82

\*Post-Shoot Data

RELEASE TIME (MST)		SECOND-STAGE IMPACT DISPLACEMENT IN MILES DUE TO WIND										AZI- MUTH (DEG- DEGS)	THEORETICAL IMPACT FROM LAUNCHER (IN MILES)				
		15-216 FT				216-4160 FT				4160-73300 FT						TOTAL	
		N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W						
RAWIN- SONDE	Pibal												RANGE	N-S	E-W		
0800	0800	2.6N	0.9E	3.0S	3.7E	5.4S	28.1W	5.8S	23.3W	356.3	61.2	61.1N	4.0W				
0800	0811	2.7N	0.9E	1.2S	2.8E	5.4S	28.1W	3.9S	24.4W	355.6	63.2	63.0N	4.9W				
0800	0820	2.0N	0.4E	1.1S	3.4S	5.4S	28.1W	4.5S	24.3W	355.6	62.6	62.4N	4.8W				
0800	0830	2.9N	0.8E	0.1S	4.1E	5.4S	28.1W	2.6S	23.2W	356.7	64.4	64.3N	3.7W				
0800	0845	3.0N	0.7E	0.3S	3.2E	5.4S	29.1W	2.7S	24.2W	355.8	64.4	64.2N	4.7W				
0800	0850	3.5N	1.4E	0.9N	3.9E	5.4S	28.1W	1.0S	22.8W	357.1	66.0	65.9N	3.3W				
0800	*0900	2.8N	1.4E	0.0	3.5E	5.4S	28.1W	2.6S	23.2W	356.7	64.4	64.3N	3.7W				

AZI- MUTH (DEG- REES)	MILES FROM LAUNCHER		
	RANGE	N-S	E-W
020.0	71.2	66.9N	24.4E
016.3	69.7	65.9N	19.5E
350.0	70.0	68.9N	12.2W
000.6	63.3	63.3N	0.7E
038.0	2.0	1.6N	1.2E
N/A	N/A	N/A	N/A

TABLE XVI. IMPACT PREDICTION DATA  
NIKE-HYDAC STV-83

\*Post-Shoot Data

UNCLASSIFIED

Security Classification

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11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
		U. S. Army Electronics Command Atmospheric Sciences Office White Sands Missile Range, New Mexico	
13. ABSTRACT  Meteorological data gathered for the launching of two Nike-Hydac Missiles, STV-82 and STV-83, are presented for the Space and Missile Systems Organization, Holloman Air Force Base, New Mexico, and for ballistic studies. The data appear, along with calculated ballistic data, in tabular form. ( )			

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